# MATERIAL SAFETY DATA SHEET

**National Institute of Standards and Technology**
**Standard Reference Materials Program**
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**SRM Number: 3074**
**MSDS Number: 3074**
**SRM Name: Phthalates in Methanol**

**Date of Issue: 19 April 2006**

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## SECTION I. MATERIAL IDENTIFICATION

**Material Name:** Phthalates in Methanol

**Description:** A unit of SRM 3074 consists of five 2-milliliter ampoules, each containing 1.2 mL of solution.

**Other Designations:** **Phthalates** in **Methanol** (methyl alcohol; wood alcohol; methyl hydroxide; carbinol; monohydroxymethane; wood spirit; wood naphtha; methylol)

| Name | Chemical Formula | CAS Registry Number[(a)] |
|---|---|---|
| Methanol | $CH_3OH$ | 67-56-1 |

**DOT Classification:** Methanol; UN1230; Packing Group II; Hazard Class 3.

[(a)] For the CAS Registry Numbers of the adipate and phthalates in this material, refer to the corresponding Certificate of Analysis.

## SECTION II. HAZARDOUS INGREDIENTS[(a)]

| Hazardous Components | Nominal Concentration (%) | Exposure Limits and Toxicity Data |
|---|---|---|
| Methanol | 99 | OSHA TWA: 260 mg/m$^3$ (200 ppm) |
| | | NIOSH recommended STEL (skin): 325 mg/m$^3$ (250 ppm) |
| | | NIOSH recommended TWA (skin): 260 mg/m$^3$ (200 ppm) (10 h) |
| | | Human, Inhalation: $TC_{LO}$: 86 000 mg/m$^3$ |
| | | Human, Oral: $LD_{LO}$: 143 mg/kg |
| | | Rat, Oral: $LD_{50}$: 5 628 mg/kg |
| Adipate and Phthalates[(b)]<br>Dimethylphthalate *Bis*(2-ethylhexyl)adipate<br>Diethylphthalate *Bis*(2-ethylhexyl)phthalate<br>Di-*n*-butylphthalate Di-*n*-octylphthalate<br>Benzylbutylphthalate | < 0.1 % | |

[(a)] Hazardous components 1 % or greater; Carcinogens 0.1 % or greater are listed in compliance with OSHA 29 CFR 1910.1200. For the list and actual concentration of other constituents less than 1 %, which are below the reportable limit, refer to the corresponding Certificate of Analysis.

[(b)] This material contains an adipate and phthalates**,** which have been reported to have toxic, mutagenic, and/or carcinogenic properties, and should be handled with care. The carcinogens in this material have a total concentration < 0.1 % and do not require individual MSDS information under current regulations. For actual concentrations, see the corresponding Certificate of Analysis.

## SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

| Methanol | |
|---|---|
| **Appearance and Odor:** a clear, colorless liquid with a characteristic alcoholic odor | **Freezing Point:** –94 °C (–137 °F) |
| **Relative Molecular Mass:** 32.04 | **Vapor Pressure (@ 20 °C):** 97.25 mmHg |
| **Density:** 0.7914 g/m$^3$ | **Evaporation Rate (butyl acetate = 1):** 4.6 |
| **Boiling Point:** 65 °C (149 °F) | **Water Solubility:** soluble |
| **Viscosity (@ 20 °C):** 0.59 cP | **Solvent Solubility:** soluble in ether, benzene, alcohol, acetone, chloroform, and ethanol |

## SECTION IV. FIRE AND EXPLOSION HAZARD DATA

**Methanol**
**Flash Point:** 11 °C **Method Used:** Closed Cup **Autoignition Temperature:** 385 °C

**Flammability Limits in Air (Volume %): UPPER:** 36
**LOWER:** 6.0

**Unusual Fire and Explosion Hazards:** Methanol is a severe fire and explosion hazard when exposed to heat or flame. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapor and air mixtures are explosive.

**Extinguishing Media:** Use alcohol-resistant foam, regular dry chemical, carbon dioxide, or water spray.

**Special Fire Procedures:** Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

## SECTION V. REACTIVITY DATA

**Stability:** **X** **Stable** ____ **Unstable**

**Conditions to Avoid:** Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

**Incompatibility (Materials to Avoid):** This material is incompatible with halo carbons, combustible materials, metals, oxidizing materials, halogens, metal carbide, bases, and acids.

See Section IV**:** *Unusual Fire and Explosion Hazards*

**Hazardous Decomposition or Byproducts:** Thermal decomposition products of methanol may include oxides of carbon and various organic fragments.

**Hazardous Polymerization:** ____ **Will Occur** **X** **Will Not Occur**

## SECTION VI. HEALTH HAZARD DATA

**Route of Entry:** **X** **Inhalation** **X** **Skin** **X** **Ingestion**

**Methanol:** Methanol is a skin and eye irritant and can cause nerve damage. This material is harmful if inhaled or absorbed through skin. Ingestion may be fatal or cause blindness. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause damage to the eyes, liver, heart, and kidneys. Methanol may also cause gastrointestinal disturbances and convulsions.

**Medical Conditions Generally Aggravated by Exposure: Methanol** may affect eye disorders, kidney disorders, skin disorders, and allergies.

**Listed as a Carcinogen/Potential Carcinogen (Methanol):**

| | Yes | No |
|---|---|---|
| In the National Toxicology Program (NTP) Report on Carcinogens | | X |
| In the International Agency for Research on Cancer (IARC) Monographs | | X |
| By the Occupational Safety and Health Administration (OSHA) | | X |

**Listed as a Carcinogen/Potential Carcinogen (dimethylphthalate; diethylphthalate; di-*n*-butylphthalate; benzylbutylphthalate; di-*n*-octylphthalate; *bis*[2-ethylhexyl]adipate):**

| | Yes | No |
|---|---|---|
| In the National Toxicology Program (NTP) Report on Carcinogens | | X |
| In the International Agency for Research on Cancer (IARC) Monographs | | X |
| By the Occupational Safety and Health Administration (OSHA) | | X |

**Listed as a Carcinogen/Potential Carcinogen (*bis*[2-ethylhexyl]phthalate):**

| | Yes | No |
|---|---|---|
| In the National Toxicology Program (NTP) Report on Carcinogens | X | |
| In the International Agency for Research on Cancer (IARC) Monographs | | X |
| By the Occupational Safety and Health Administration (OSHA) | | X |

**EMERGENCY AND FIRST AID PROCEDURES:**

**Skin Contact:** Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

**Eye Contact:** Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

**Inhalation:** If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

**Ingestion:** If ingested, wash out mouth with water. Obtain medical assistance immediately.

**TARGET ORGAN(S) OF ATTACK:** Central nervous system (CNS).

## SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

**Steps to be Taken in Case Material Is Released or Spilled:** Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal.

**Waste Disposal:** Follow all federal, state, and local laws governing disposal.

**Handling and Storage:** Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

This material should be stored in a cool, dry, well-ventilated area away from incompatible materials and conditions. Protect containers from physical damage.

## SECTION VIII. SOURCE DATA/OTHER COMMENTS

**Sources:**


MDL Information Systems, Inc., MSDS *Dimethyl Phthalate*, 16 June 2005.
MDL Information Systems, Inc., MSDS *Diethy Phthalate*, 16 June 2005.
MDL Information Systems, Inc., MSDS *Dibutyl Phthalate*, 08 December 2005.
MDL Information Systems, Inc., MSDS *Butyl Benzyl Phthalate*, 08 December 2005.
MDL Information Systems, Inc., MSDS *Di-(2-Ethylhexyl)Phthalate*, 15 September 2005.
MDL Information Systems, Inc., MSDS *Dioctyl Phthalate*, 16 June 2005.
MDL Information Systems, Inc., MSDS *Di(2-Ethylhexyl)Adipate*, 17 March 2005.
MDL Information Systems, Inc., MSDS *Methyl Alcohol*, 16 June 2005.